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<110> National University of Singapore

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5 <130> Mycobacterium tuberculosis antigens

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<170> PatentIn Ver. 2.1

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10	gtg gac gac gtc gtg caa cat gtt gcg cgg cgg ccc ggg gaa tcc ccg	336
	Val Asp Asp Val Val Gln His Val Ala Arg Arg Pro Gly Glu Ser Pro	
	100 105 110	
	cca tca att atc gaa gtt gat ttg ctg gat ctg gac gct ccg aat ggg	384
	Pro Ser Ile Ile Glu Val Asp Leu Leu Asp Leu Asp Ala Pro Asn Gly	
15	115 120 125	
	tat acc ttc aaa gaa gac gag tat cca tct acc gcg tat ttg caa tac	432
	Tyr Thr Phe Lys Glu Asp Glu Tyr Pro Ser Thr Ala Tyr Leu Gln Tyr	
	130 135 140	
	acc tcc ggg tcc acc cgc acg ccc gct ggc gtg gtg atg tcc cat cag	480
20	Thr Ser Gly Ser Thr Arg Thr Pro Ala Gly Val Val Met Ser His Gln	
	145 150 155 160	
	aac gtt cgg gtt aat ttc gaa cag ctg atg tct ggc tac ttt gcg gat	528
	Asn Val Arg Val Asn Phe Glu Gln Leu Met Ser Gly Tyr Phe Ala Asp	
	165 170 175	
25	acc gac ggg att cca ccg cca aat tcc gca ctc gta tcc tgg cta ccc	576
	Thr Asp Gly Ile Pro Pro Pro Asn Ser Ala Leu Val Ser Trp Leu Pro	
	180 185 190	
	ttc tac cac gac atg ggt ttg gta ata gga att tgc gca cca att ctg	624
30	Phe Tyr His Asp Met Gly Leu Val Ile Gly Ile Cys Ala Pro Ile Leu	
	195 200 205	
	ggg gga tac ccc gcg gtg ctc acc agc ccg gtg tcg ttc ctg cag cgc	672
	Gly Gly Tyr Pro Ala Val Leu Thr Ser Pro Val Ser Phe Leu Gln Arg	
	210 215 220	
	ccg gcc cgg tgg atg cac ttg atg gcc agc gat ttt cac gcc ttt tcg	720
35	Pro Ala Arg Trp Met His Leu Met Ala Ser Asp Phe His Ala Phe Ser	
	225 230 235 240	
	gca gca ccg aat ttc gcc ttt gaa cta gcg gca cga aga aca acc gac	768
	Ala Ala Pro Asn Phe Ala Phe Glu Leu Ala Ala Arg Arg Thr Thr Asp	
	245 250 255	
40	gac gac atg gcc ggg cgt gac ctc ggc aac ata ctg acc atc ctc agc	816
	Asp Asp Met Ala Gly Arg Asp Leu Gly Asn Ile Leu Thr Ile Leu Ser	
	260 265 270	
	ggg agc gag cgg gta cag gcc gcg acg atc aag cgc ttc gcc gac cgc	864
45	Gly Ser Glu Arg Val Gln Ala Ala Thr Ile Lys Arg Phe Ala Asp Arg	
	275 280 285	

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Phe Ala Arg Phe Asn Leu Gln Glu Arg Val Lys Ala  
290 295 300

5 <210> 6  
<211> 300  
<212> PRT  
<213> Mycobacterium tuberculosis

10 <400> 6  
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Gln Leu Tyr Arg Thr Leu Asn Val Ala Gln Glu Leu Ser Arg Cys  
20 25 30  
Gly Ser Thr Gly Asp Arg Val Val Ile Ser Ala Pro Gln Gly Leu Glu  
35 40 45  
15 Tyr Val Val Ala Tyr Leu Gly Ala Leu Gln Ala Gly Arg Ile Ala Val  
50 55 60  
Pro Leu Ser Val Pro Gln Gly Gly Val Thr Asp Glu Arg Ser Asp Ser  
65 70 75 80  
Val Leu Ser Asp Ser Ser Pro Val Ala Ile Leu Thr Thr Ser Ser Ala  
85 90 95  
20 Val Asp Asp Val Val Gln His Val Ala Arg Arg Pro Gly Glu Ser Pro  
100 105 110  
Pro Ser Ile Ile Glu Val Asp Leu Leu Asp Leu Asp Ala Pro Asn Gly  
115 120 125  
25 Tyr Thr Phe Lys Glu Asp Glu Tyr Pro Ser Thr Ala Tyr Leu Gln Tyr  
130 135 140  
Thr Ser Gly Ser Thr Arg Thr Pro Ala Gly Val Val Met Ser His Gln  
145 150 155 160  
Asn Val Arg Val Asn Phe Glu Gln Leu Met Ser Gly Tyr Phe Ala Asp  
165 170 175  
30 Thr Asp Gly Ile Pro Pro Asn Ser Ala Leu Val Ser Trp Leu Pro  
180 185 190  
Phe Tyr His Asp Met Gly Leu Val Ile Gly Ile Cys Ala Pro Ile Leu  
195 200 205  
35 Gly Gly Tyr Pro Ala Val Leu Thr Ser Pro Val Ser Phe Leu Gln Arg  
210 215 220  
Pro Ala Arg Trp Met His Leu Met Ala Ser Asp Phe His Ala Phe Ser  
225 230 235 240  
Ala Ala Pro Asn Phe Ala Phe Glu Leu Ala Ala Arg Arg Thr Thr Asp  
245 250 255  
40 Asp Asp Met Ala Gly Arg Asp Leu Gly Asn Ile Leu Thr Ile Leu Ser  
260 265 270  
Gly Ser Glu Arg Val Gln Ala Ala Thr Ile Lys Arg Phe Ala Asp Arg  
275 280 285  
45 Phe Ala Arg Phe Asn Leu Gln Glu Arg Val Lys Ala  
290 295 300

50 <210> 7  
<211> 432  
<212> DNA  
<213> Mycobacterium tuberculosis

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<222> (1)..(432)

<220>

<221> mat\_peptide

<222> (1)..(432)

<400> 7

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Ala Thr Thr Leu Pro Val Gln Arg His Pro Arg Ser Leu Phe Pro Glu  
1 5 10 15

10 ttt tct gag ctg ttc gcg gcc ttc ccg tca ttc gcc gga ctc cgg ccc 96  
Phe Ser Glu Leu Phe Ala Ala Phe Pro Ser Phe Ala Gly Leu Arg Pro  
20 25 30

acc ttc gac acc cgg ttg atg cgg ctg gaa gac gag atg aaa gag ggg 144  
Thr Phe Asp Thr Arg Leu Met Arg Leu Glu Asp Glu Met Lys Glu Gly  
35 40 45

15 cgc tac gag gta cgc gcg gag ctt ccc ggg gtc gac ccc gac aag gac 192  
Arg Tyr Glu Val Arg Ala Glu Leu Pro Gly Val Asp Pro Asp Lys Asp  
50 55 60

gtc cac att atg gtc cgc gat ggt cag ctg acc atc aag gcc gag cgc 240  
Val His Ile Met Val Arg Asp Gly Gln Leu Thr Ile Lys Ala Glu Arg  
65 70 75 80

20 acc gag cag aag gac tta gac ggt cgc tcg gaa ttc gcg tac ggt tcc 288  
Thr Glu Gln Lys Asp Leu Asp Gly Arg Ser Glu Phe Ala Tyr Gly Ser  
85 90 95

ttc gtt cgc acg gtg tcg ctg ccg gta ggt gct gac gag gac gac att 336  
Phe Val Arg Thr Val Ser Leu Pro Val Gly Ala Asp Glu Asp Asp Ile  
100 105 110

25 aag gcc acc tac gac aag ggc att ctt act gtg tcg gtg gcg gtt tcg 384  
Lys Ala Thr Tyr Asp Lys Gly Ile Leu Thr Val Ser Val Ala Val Ser  
115 120 125

30 gaa ggg aag cca acc gaa aag cac att cag atc cgg tcc acc aac tga 432  
Glu Gly Lys Pro Thr Glu Lys His Ile Gln Ile Arg Ser Thr Asn  
130 135 140

<210> 8

<211> 143

<212> PRT

35 <213> Mycobacterium tuberculosis

<400> 8

Ala Thr Thr Leu Pro Val Gln Arg His Pro Arg Ser Leu Phe Pro Glu  
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20 25 30

Thr Phe Asp Thr Arg Leu Met Arg Leu Glu Asp Glu Met Lys Glu Gly  
35 40 45

Arg Tyr Glu Val Arg Ala Glu Leu Pro Gly Val Asp Pro Asp Lys Asp  
50 55 60

45 Val His Ile Met Val Arg Asp Gly Gln Leu Thr Ile Lys Ala Glu Arg  
65 70 75 80

Thr Glu Gln Lys Asp Leu Asp Gly Arg Ser Glu Phe Ala Tyr Gly Ser  
85 90 95

Phe Val Arg Thr Val Ser Leu Pro Val Gly Ala Asp Glu Asp Asp Ile

100 105 110  
Lys Ala Thr Tyr Asp Lys Gly Ile Leu Thr Val Ser Val Ala Val Ser  
115 120 125  
Glu Gly Lys Pro Thr Glu Lys His Ile Gln Ile Arg Ser Thr Asn  
5 130 135 140

<210> 9  
<211> 1161  
<212> DNA  
<213> Mycobacterium tuberculosis

10 <220>  
<221> CDS  
<222> (1)..(1161)

15 <220>  
<221> mat\_peptide  
<222> (1)..(1161)

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20 aac ccg ccg gtg ccg ccg gtg ccg ccg cta ccg gcc gcg ccc ccg acg 96  
Asn Pro Pro Val Pro Pro Val Pro Pro Leu Pro Ala Ala Pro Arg Thr  
20 25 30  
25 ctg tcg ccg ccg gta ccg ccg gcg ccg ccg tcg ccg atc agc ttg gcg 144  
Leu Ser Pro Pro Val Pro Pro Ala Pro Pro Ser Pro Ile Ser Leu Ala  
35 40 45  
gcc ccg ccg ctg cca ccg gac ccg ccg atg ccg ccg gcc att tgg tcc 192  
Ala Pro Pro Leu Pro Pro Asp Pro Pro Met Pro Pro Ala Ile Trp Ser  
50 55 60  
30 gca ctg gag gcg ccg aac cct ccg gtg ccc ccg gcg ccg ccg gga ccg 240  
Ala Leu Glu Ala Pro Asn Pro Pro Val Pro Pro Ala Pro Pro Gly Pro  
65 70 75 80  
aac agt gcg ccg gca ccg ccg atg ccg ccg acg cct cct ttg ccg ccg 288  
Asn Ser Ala Pro Ala Pro Pro Met Pro Pro Thr Pro Pro Leu Pro Pro  
85 90 95  
35 gtg ccg ccg ggg tcg ggc gcg ccg aga ccg gtt ccg gcg gtg ccg cca 336  
Val Pro Pro Gly Ser Gly Ala Pro Arg Pro Val Pro Ala Val Pro Pro  
100 105 110  
atg ccg cca gcg ccg aag agg atg ccg gcg ttg ccg ccc gcc ccg ccg 384  
Met Pro Pro Ala Pro Lys Arg Met Pro Ala Leu Pro Pro Ala Pro Pro  
115 120 125  
40 gcc ccg ccc tca ccg ccc acg agt tgg tta gcg gtg cca gtt ccg ccg 432  
Ala Pro Pro Ser Pro Pro Thr Ser Trp Leu Ala Val Pro Val Pro Pro  
130 135 140  
gtg ccg ccg gtc ccg ccg ttg ccg gtg aag atg ccg ccg tcg cct ccg 480  
Val Pro Pro Val Pro Pro Leu Pro Val Lys Met Pro Pro Ser Pro Pro  
145 150 155 160

	gtg ccg ccg ttc cct ccg gcc gag ccg gag act ccg aac ccg ccg gcg	528
	Val Pro Pro Phe Pro Pro Ala Glu Pro Glu Thr Pro Asn Pro Pro Ala	
	165 170 175	
5	ccg ccg gca ccg cca ttg gag aac agc ccg ccg ccc ccg ccg gtg ccg	576
	Pro Pro Ala Pro Pro Leu Glu Asn Ser Pro Pro Pro Pro Pro Val Pro	
	180 185 190	
	ccg gtg cca ccg gtg ccc ccg ttg acg ctc aac ccg ccg gtg ccg ccg	624
	Pro Val Pro Pro Val Pro Pro Leu Thr Leu Asn Pro Pro Val Pro Pro	
	195 200 205	
10	gca ccg ccg gcg gcc aac acc tcg aac agc ccg ctg cga ccg ccg gcc	672
	Ala Pro Pro Ala Ala Asn Thr Ser Asn Ser Pro Leu Arg Pro Pro Ala	
	210 215 220	
	ccg ccg gcg cca ccg ttg aag cct ggc ccg ccg gcc ccg ccg atg cca	720
15	Pro Pro Ala Pro Pro Leu Lys Pro Gly Pro Pro Ala Pro Pro Met Pro	
	225 230 235 240	
	ccg gct ccg aac agc ccg gcc gcc ccg ccg tcg ccg ccg agc ccg cct	768
	Pro Ala Pro Asn Ser Pro Ala Ala Pro Pro Ser Pro Pro Ser Pro Pro	
	245 250 255	
20	gtg ccg gtg ttc ccg act ccg ccg ggc ccc ccg gcg ccg ccg gag ccg	816
	Val Pro Val Phe Pro Thr Pro Pro Gly Pro Pro Ala Pro Pro Glu Pro	
	260 265 270	
	aac agc agc ccg ccg gcc ccg ccg gcc ccg cca gcc gcg ccg ttg ccc	864
	Asn Ser Ser Pro Pro Ala Pro Pro Ala Pro Pro Ala Ala Pro Leu Pro	
	275 280 285	
25	ggg ccg tca ccc ccg gcc cca ccc gcc ccg ccg ttg ccg aat agc ccc	912
	Gly Pro Ser Pro Pro Ala Pro Pro Ala Pro Pro Leu Pro Asn Ser Pro	
	290 295 300	
	gcg gct cca cct ggg ccg ccg gcc tgg ccg ggc gcc ccg gac ccg ccg	960
30	Ala Ala Pro Pro Gly Pro Pro Ala Trp Pro Gly Ala Pro Asp Pro Pro	
	305 310 315 320	
	gcc ccg ccg ttg ccg tac agc agc ccg ccg gcc ccg ccg gct tgc ccg	1008
	Ala Pro Pro Leu Pro Tyr Ser Ser Pro Pro Ala Pro Pro Ala Cys Pro	
	325 330 335	
35	gtc ccc ggt gcg ccg ttg gcg ccg ttg ccg atc agc gga cgc ccc agc	1056
	Val Pro Gly Ala Pro Leu Ala Pro Leu Pro Ile Ser Gly Arg Pro Ser	
	340 345 350	
	aac agc tgg gtg ggc gtg ttc aca atg ttg agc agg ccc tcc aac ggc	1104
	Asn Ser Trp Val Gly Val Phe Thr Met Leu Ser Arg Pro Ser Asn Gly	
	355 360 365	
40	gcc gcg gcg gcg gcc tca gcg ctc gcg tac gcg cca gcg ccc gca gta	1152
	Ala Ala Ala Ala Ala Ser Ala Leu Ala Tyr Ala Pro Ala Pro Ala Val	
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45	aag gtt tga	1161
	Lys Val	
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 <212> PRT  
 <213> Mycobacterium tuberculosis

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 10 Leu Ser Pro Pro Val Pro Pro Ala Pro Pro Ser Pro Ile Ser Leu Ala  
 35 40 45  
 Ala Pro Pro Leu Pro Pro Asp Pro Pro Met Pro Pro Ala Ile Trp Ser  
 50 55 60  
 Ala Leu Glu Ala Pro Asn Pro Pro Val Pro Pro Ala Pro Pro Gly Pro  
 15 65 70 75 80  
 Asn Ser Ala Pro Ala Pro Pro Met Pro Pro Thr Pro Pro Leu Pro Pro  
 85 90 95  
 Val Pro Pro Gly Ser Gly Ala Pro Arg Pro Val Pro Ala Val Pro Pro  
 100 105 110  
 20 Met Pro Pro Ala Pro Lys Arg Met Pro Ala Leu Pro Pro Ala Pro Pro  
 115 120 125  
 Ala Pro Pro Ser Pro Pro Thr Ser Trp Leu Ala Val Pro Val Pro Pro  
 130 135 140  
 Val Pro Pro Val Pro Pro Leu Pro Val Lys Met Pro Pro Ser Pro Pro  
 25 145 150 155 160  
 Val Pro Pro Phe Pro Pro Ala Glu Pro Glu Thr Pro Asn Pro Pro Ala  
 165 170 175  
 Pro Pro Ala Pro Pro Leu Glu Asn Ser Pro Pro Pro Pro Val Pro  
 180 185 190  
 30 Pro Val Pro Pro Val Pro Pro Leu Thr Leu Asn Pro Pro Val Pro Pro  
 195 200 205  
 Ala Pro Pro Ala Ala Asn Thr Ser Asn Ser Pro Leu Arg Pro Pro Ala  
 210 215 220  
 Pro Pro Ala Pro Pro Leu Lys Pro Gly Pro Pro Ala Pro Pro Met Pro  
 35 225 230 235 240  
 Pro Ala Pro Asn Ser Pro Ala Ala Pro Pro Ser Pro Pro Ser Pro Pro  
 245 250 255  
 Val Pro Val Phe Pro Thr Pro Pro Gly Pro Pro Ala Pro Pro Glu Pro  
 260 265 270  
 40 Asn Ser Ser Pro Pro Ala Pro Pro Ala Pro Pro Ala Ala Pro Leu Pro  
 275 280 285  
 Gly Pro Ser Pro Pro Ala Pro Pro Ala Pro Pro Leu Pro Asn Ser Pro  
 290 295 300  
 Ala Ala Pro Pro Gly Pro Pro Ala Trp Pro Gly Ala Pro Asp Pro Pro  
 45 305 310 315 320  
 Ala Pro Pro Leu Pro Tyr Ser Ser Pro Pro Ala Pro Pro Ala Cys Pro  
 325 330 335  
 Val Pro Gly Ala Pro Leu Ala Pro Leu Pro Ile Ser Gly Arg Pro Ser  
 340 345 350  
 50 Asn Ser Trp Val Gly Val Phe Thr Met Leu Ser Arg Pro Ser Asn Gly  
 355 360 365  
 Ala Ala Ala Ala Ala Ser Ala Leu Ala Tyr Ala Pro Ala Pro Ala Val  
 370 375 380  
 Lys Val  
 55 385